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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

STORM, DONALD L

ART UNIT PAPER NUMBER

2654

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/725,438 | Applicant(s) ODA ET AL. | |
| | Examiner Donald L. Storm | Art Unit 2654 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 is/are allowed.
- 6) ☒ Claim(s) 1,2,6,7,11 and 12 is/are rejected.
- 7) ☒ Claim(s) 4,5,8-10 and 13-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Allowable Subject Matter

2. Claim 3 is allowed.
3. Claims 4-5, 8-10, and 13-15 would be allowable over the prior art of record if rewritten to include all of the limitations of the base claim and any intervening claims. The whole structure and interaction expressed by the combination of all limitations is not made obvious compared to the prior art of record for the whole invention of those dependent claims, particularly with pitch change of a voice signal on a degree basis until a maximum probability reaches or exceeds a predetermined probability.

Claim Informalities

4. Claims 4-5, 8-10, and 13-15 are objected to as being (directly or indirectly) dependent upon a rejected base claim. See MPEP § 608.01(n)V.

Claim Rejections - 35 USC § 103

Munsell and Cohrs

5. Claims 1-2, 6-7, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Munsell et al. [US Patent 5,839,099] in view of Cohrs et al. [US Patent 5,960,393], both already of record.
6. Regarding claim 6, Munsell [at column 3, lines 47-50] describes an embodiment (not shown) in which a voice recognition device causes a frequency bandpass circuit to change

incoming voice into an intermediate output that is then applied to a pitch altering circuit. In accord with that embodiment, Munsell [at column 1, lines 1-8] describes a voice recognition device optimally normalized for voice recognition by describing the content and functionality of the recited limitations recognizable as a whole to one versed in the art as the following terminology:

a voice pitch normalization device operable to change [at column 6, lines 4-11 and column 4, line 61-column 5, line 15, as a signal conditioner including a filter control circuit, low-pass filter, high-pass filter, A/D converter, and rate control circuit for a pitch altering circuit];

it changes a voice signal in voice pitch [at column 2, lines 52-61, as modify the predominant frequency of the voice input to a lower or higher pitch];

it changes a target voice signal on a degree basis [at column 2, line 53-column 3, line 1, an output from the voice input is altered for the voice input as compared to the voice input];

the basis is predetermined [at column 6, lines 7-8, as the frequency range is controlled by control signals that are predetermined];

change it until a maximum based on the changed signal and changing is caused by the operable voice recognition device [at column 5, lines 6-25 and column 6, line 42, as pitch altering has a control that is altered by the voice recognition system for lower or higher pitched human voice as required to optimize in conjunction with the voice recognition system];

a voice analyzer operable to calculate indicating a degree of coincidence between a target voice signal and a different one of a plurality of words in sample data [at column 1, lines 14-28, as a computer of voice recognition systems compares a succession of phonemes of input voice to words represented as various groupings of sampled phonemes];

In the embodiment (not shown) [at column 3, lines 47-50] in which a frequency bandpass circuit changes incoming voice into an intermediate output that is then applied to a pitch altering circuit, Munsell's voice signal of changing pitch is the target voice signal output from the frequency bandpass circuit and then applied to the pitch altering circuit.

Munsell does not discuss details of the voice recognition device. In particular, Munsell does not explicitly describe that a probability indicates each degree of coincidence and calculation of a probability maximum that becomes equal to or greater than a predetermined probability.

Cohrs [at column 1] describes some details of voice recognition devices that are conventionally found in command spotting applications, or other details may be used; the trade-offs are often conventionally applied by artisans also. Cohrs describes:

the degree of coincidence indicated by a probability, the maximum is a probability and its calculation is caused by the operable voice recognition device, and the maximum equal to a predetermined probability (or greater than it) [at column 1, line 31-column 2, line 7, as the scores comparing the input against respective hypotheses of one or more models of a system for recognition is a probability distribution and the most closely matching is analyzed to determine whether its similarity metric exceeds a threshold].

As indicated, Cohrs shows that conventional voice recognition using the degree of coincidence indicated by a probability, a probability of coincidence is maximum that indicates the optimum match, and the maximum equaling a predetermined probability was known to artisans at the time of invention. The system by Munsell requires a voice recognition system that compare input voice to reference word models, but merely any voice recognition system from mature technologies. Munsell has not disclosed a preferred approach to those operations according to a design criterion or solution to any stated problem. Since it appears that the use of any voice recognition system that is known to artisans would perform to provide Munsell's control signal back to determine pitch, it would have been obvious to one of ordinary skill in the art of speech processing at the time of invention to include the concepts described by Cohrs, at least conventional voice recognition with the degree of coincidence indicated by a probability, the probability of coincidence being maximum, and the maximum equaling a predetermined probability, because the Cohrs' voice recognition system would provide the conventional voice recognition with which Munsell's system operates.

7. Regarding claim 7, Munsell also describes:

increase or decrease on the basis [at column 6, lines 13-26, as alter the frequency ranges of the low-pass filter and the high-pass filter];

the target signal is increased or decreased [at column 2, line 53-column 3, line 1, as produce an output from the voice input that is altered for the voice input as bandwidth limited as compared to the voice input].

Cohrs also describes:

when the maximum probability is smaller than the predetermined probability [at column 1, line 31-column 2, line 7, as the scores of a probability distribution and the most closely matching is analyzed to determine whether its similarity metric exceeds a threshold].

8. Claim 1 sets forth limitations similar to limitations set forth in claim 6. Because Munsell and Cohrs describe and make obvious the similar limitations as indicated there, this claim thus is unpatentable accordingly, where the claimed voice pitch normalization apparatus is satisfied by Munsell's voice recognition device operable to cause the change in target voice signal and Cohrs' system for recognition operable to cause the maximum probability calculation.

9. Claim 2 sets forth limitations similar to limitations set forth in claim 7. Munsell and Cohrs describe and make obvious the limitations as indicated there.

10. Claims 11 and 12 set forth a method with limitations comprising the functionality associated with using the system recited in claims 6 and 7. Because Munsell and Cohrs describe and make obvious the similar limitations as indicated there, these claims thus are unpatentable accordingly.

Response to Arguments

11. The prior Office action, mailed November 2, 2005, objects to the specification and claims, and rejects claims under 35 USC § 103, citing Munsell and Cohrs in combination, and under the judicially created doctrine of obviousness-type double patenting. The Applicant's arguments and changes in AMENDMENT, filed January 11, 2006, have been fully considered with the following results.

12. With respect to objection to the specification's out-of-date reference to related applications, the changes entered by amendment provide a sufficient citation. Accordingly, the objection is removed.

13. With respect to objection to the claims as dependent upon a rejected base claim, some claims are dependent upon rejected base claims. Those objections that remain are repeated elsewhere in this Office action. The objections of the previous Office action to claim 3 is removed because it has been written as an independent claim and allowed.

14. With respect to objection to those claims needing clarification, the changes entered by amendment provide clear descriptions of the claimed subject matter. Accordingly, the objections are removed.

15. The changes that correct typographical errors in the specification and claims are acknowledged.

16. With respect to rejection of claims under 35 USC § 103, citing Munsell and Cohrs in combination, the Applicant's arguments appear to be as follows:

a. The Applicant's argument appears to be that neither one of Munsell nor Cohrs explicitly describes changing an utterance in pitch until a maximum probability is equal to or greater than a predetermined probability and that a maximum probability is calculated based on a signal having a pitch changed from the pitch of the utterance. Although the Examiner agrees with this statement of the teachings of Munsell and Cohrs, this argument is not persuasive because one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. Munsell and Cohrs combine to teach or suggest that the pitch be changed until a maximum probability exceeds a threshold. See the rejections of claims 1, 6, and 11, where the claim elements are enumerated. Neither Munsell nor Cohrs should be read without reference to the other because the question is whether the hypothetical person of ordinary skill in the relevant art, familiar with all that the references disclose, would have found it obvious to make a structure corresponding to what is claimed.

b. The Applicant's argument appears to be that because neither one of Munsell nor Cohrs explicitly describes changing an utterance in pitch until a maximum probability is equal to or greater than a predetermined probability and that a maximum probability is calculated based on a signal having a pitch changed from the pitch of the utterance, therefore, an artisan would lack the motivation to combine the descriptions of Munsell and Cohrs. This argument is not persuasive because one of ordinary skill in the art of speech recognition would see that Munsell needs a working speech recognition system that optimizes a match between a voice signal and signal representations of words, and see that Munsell has not disclosed a preferred approach to the speech recognition. When the required knowledge was in the art, it is then proper to rely to some extent on knowledge and common sense of the person of ordinary skill in the art to complement that which is explicitly described without any specific hint or suggestion in a particular reference. In this case, an artisan would know that using conventional probabilities and looking for them to

exceed a threshold, as Cohrs describes, provides the optimum matching and criteria that fills Munsell's need.

17. The terminal disclaimer filed on January 11, 2006 is effective to overcome the double patenting rejections. Accordingly, the rejections are removed.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

19. Any response to this action should be mailed to:

Mail Stop AF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to:

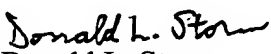
(571) 273-8300, (please mark "EXPEDITED PROCEDURE"; for formal communications and for informal or draft communications, additionally marked "PROPOSED" or "DRAFT")

Patent Correspondence delivered by hand or delivery services, other than the USPS, should be addressed as follows and brought to U.S. Patent and Trademark Office, Customer Service Window, **Mail Stop AF**, Randolph Building, 401 Dulany Street, Alexandria, VA 22314

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L. Storm, of Art Unit 2654, whose telephone number is (571) 272-7614. The examiner can normally be reached on weekdays between 7:00 AM and 3:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: ebc@uspto.gov. For general information about the PAIR system, see <http://pair-direct.uspto.gov>.

January 27, 2006


Donald L. Storm
Examiner, Art Unit 2654